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## REMARKS

The amendment to the specification, amending the description of the Figures does not add new matter. These amendments were requested by the present Examiner in co-pending sister patent application USSN 10/375,540. The amendments are being made in the present application so that the two applications are in conformity and in anticipation of the request that they be made. Specifically, the description of FIG. 1 has been amended to recite that FIGS 1A-1D provide several views of “a substantially ‘D’-shaped cortical bone implant.” Support for this amendment is found throughout the specification, including at page 9, lines 24-25 (“Referring now to figure 1A, there is shown a top view, as if viewed from the top of the spinal column, of **a substantially ‘D’-shaped cortical bone implant 100.**”); at page 9, line 29 (“In figure 1B, there is shown a side view of the implant, 100 . . . .”); at page 10, lines 1-2 (“In figure 1C, there is shown a top view of the implant, 100 . . . .”); and at page 10, lines 4-5 (“Figure 1D shows a top view of the implant, 100. . . .”). In addition, FIG. 1 has been amended to recite that “FIG. 1E shows the detail of the inscribed feature of FIG. 1D.” Support for this amendment is found in the specification at FIGS. 1D-1E and in the specification at page 10, lines 9-11 (“In figure 1E, there is shown a detail of one embodiment of the inscribed feature 120 on the portion of the implant indicated in figure 1D.”).

The description FIG. 2 has been amended to reflect that FIGS. 2A and 2B provide “side and end-on views, respectively.” Support for this amendment is found in FIGs. 2A and 2B, and in the specification at page 10, lines 28-30 (“Referring to figure 2, there is shown in **side view in figure 2A** a core cutter 200, having a core bit 201 which is affixed by a set screw 203 to the shaft 204 of a drill bit 202, centrally located within and coaxial with the core cutter. In **figure 2B**, an **end-on view** of the core cutter 200. . . .”).

The description FIG. 3 has been amended to reflect that FIG. 3B provides an “**end-on view**” of an asymmetric canal “**in a cancellous bone plug.**” Support for the description is found in FIG. 3B and in the specification at page 11, lines 15-18 (“In figure 3B, there is provided an **end-on view** of the **cancellous bone plug 310** after the broaching procedure is completed. As can be seen, the internal canal 104 has been converted from a circular canal into a substantially ‘D’-shaped canal.” ); emphasis added in bold.

The description of FIG. 4 has been amended to refer to “FIGs. 4A-4E.” Support for “FIGS 4A-4E” is found in “FIGs 4A-4E” themselves.

The description of FIG. 5 has been amended to separately refer to FIGs. 5A-5E. Support for FIG. 5A being a “**top**” view is found in FIG. 5A and in the specification at page 15, line 9 (“In figure 5, figure 5A, there is provided a **top** view of one side of one embodiment of the blades 502 used for the broach assembly.”); emphasis added in bold. Support for the amendment that “FIG. 5B is a **side-view** of a implant mounting device having a “**D**”-**shaped cavity**” is found in the specification at page 15, lines 19-21 (“In FIG. 5B, there is provided a **side view** of an implant mounting device 504 having a “**D**”-**shaped cavity** 505 into which a “D”-shaped implant may be fitted for passage through the opposing jaws of the broaching jaw apparatus 500”); emphasis added in bold.] Support for the amendment reciting that “FIGS. 5C-5E provide **views of an alternate apparatus and method for fashioning the retention teeth in an implant**” is found in the specification at page 15, lines 23-24 (“In FIGS. 5C-5E, there is shown **views of an alternate apparatus and method for fashioning the retention teeth in the implant.**”); emphasis added in bold.

The amendment to the description of FIG. 6, which recites “FIGS. 6A-6C, 6D-6F and 6G-6I, respectively, provide several views and dimensions for **three** specific embodiments of an implant of this invention,” is supported by the disclosure in FIGS 6A-6I and the disclosure in the specification at page 16, lines 19-20 (“In FIG. 6A-I, there is provided a view of **three** different cortical bone implants according to this invention having particular geometries by way of example and not limitation.”).

The amendment to the description of FIG. 7, which recites that “FIG. 7A is a **top view of an implant into which four holes have been drilled**,” is supported throughout the specification, including at page 17, lines 12-13 ( “The embodiment shown in FIG. 7A is a **top view of an implant 700 into which four holes 701-704 have been drilled.**”); emphasis added in bold. The amendment to the description of FIG. 7, which recites that “FIG. 7B provides a side view of a stacked embodiment of **two** implants of FIG. 7A of this invention **shown in juxtaposition**,” is supported throughout the specification, including at page 17, lines 13-15 (“In FIG. 7B, there is shown the **juxtaposition** of **two** implants **700A** and **700B**, with the drilled holes 701-704 in register

to receive pins for maintaining the implants in register”); and at page 16, line 28 to page 17, line 1 (“In **FIG. 7**, there is shown a further aspect of this invention in which an implant, either machined as described above, or prior to said machining, is further machined so as to allow **stacking** thereof to achieve implants of various heights.”).

The description of FIG. 8, which has been amended to recite that “FIGS. 8B and 8C shows the implants of the invention **in bone stock**,” is supported by the disclosure in FIGS. 8B and 8C, and by the disclosure in the specification at page 18, lines 13-14 (“In such a case, a device 810, such as that shown in FIGS. 8D-8G is machined from **bone stock as shown in FIGS. 8B, 8C** or another appropriate bone stock . . .”); emphasis added in bold. The description of FIG. 8, which has been amended to recite that “FIGS. 8D-8G show “several views” of an embodiment useful for posterior lumbar intervertebral fusion procedures (PLIFs), is supported by the showing of several views in FIGS. 8D-8G.

The description of FIG. 10, which has been amended to associate FIG. 10B with the tibia, and FIG. 10A with the femur, is supported by the disclosure in the respective figures and by the disclosure in the specification at page 19, lines 22-23 (“Thus, as shown in figure 10A, a left femur 1000 (posterior aspect), or in FIG. 10B, a left tibia 1001 (anterior aspect), is **sectioned at 1004**. . .”) The description of FIG. 10, which has been amended to recite that FIG. 10C shows a “**section**” of long bone, is supported by the disclosure in FIG. 10C, showing section line **1004**, and at page 19, lines 26-30 (“Further processing according to this aspect of the invention involves the linea aspera 1010 of the femur or the anterior margin of the tibia 1011, as shown in **figure 10C**. Whether produced from the femur or tibia, a diaphysial shaft 1012, extending as shown at 1016 to a length permitted by the length of the shaft produced by the **sectioning at 1004/1005**.”).

The description of FIG. 11, which has been amended to refer back to the bone of FIG. 10C, is supported by the disclosures in FIGS. 10C and 11, and by the disclosure in the specification at page 19, line 30 to page 20, line 3 (“The thus produced shaft [from FIG. 10C] is then further sectioned in a plane shown at 1014 to produce a shaft of bone removed from the natural intramedullary canal 1013 having a cylindrical but somewhat triangular external shape. Into this shaft may be drilled a cannulation 1015, as shown in figure 11.”)

The description of FIG. 12, which has been amended to describe FIGS. 12A-12D as providing a “**top**” view, a “**side**” view, a “**detail view of the grooves which angle toward the posterior of the implant,**” and a “**sectional**” view, respectively, is supported by the disclosure in those respective figures, and by the disclosure in the specification at page 20, lines 18-22 (“Per FIGS. 12-17, there is provided views of five different cortical bone implants according to this invention having particular geometries by way of example and not limitation. In each figure, view A is a **top** view, view B is a **side** view, view C is a **detail of the grooves which angle toward the posterior aspect of the implant,** and view D is a **sectional** view through the line A-A shown in view A.”); emphasis added in bold.

As cited above, FIGs. 12-17 have these identical views. See the specification at page 20, lines 18-22 (“Per FIGS. 12-17, there is provided views of five different cortical bone implants according to this invention having particular geometries by way of example and not limitation. In each figure, view A is a **top** view, view B is a **side** view, view C is a **detail of the grooves which angle toward the posterior aspect of the implant,** and view D is a **sectional** view through the line A-A shown in view A.”); emphasis added in bold. In addition, the specification discloses that for FIGS 13E-13F, 15E-15F and 17E-17F, that each of FIGS. E and F are a “top view and a “side” view of a cancellous plug that appears in the central canal in each of these implants. See the specification at page 20, lines 22-23 (“In addition, where an osteogenic plug, such as a cancellous plug is present, this is shown in view E as a top view and view F as a side view of the cancellous plug.”)

The amendment to the paragraph beginning at page 9, line 24, adding the missing angle “ $\theta$ ” (see page 10, line 12), is supported by the disclosure of the angle “ $\theta$ ” in FIG. 1E of the specification, which is being discussed. Elsewhere in the paragraph, a set of missing quotation marks were added to “D”-shaped (page 9, line 25) and the term “FIG.” was used to replace “figure” where appropriate.

The amendment to the paragraph of the specification beginning at page 15, line 9, deletes the double recitation of “figure” and replaces with “FIG.” Elsewhere in the paragraph, figure was replaced with “FIG.”

The amendment to the paragraph, beginning at page 18, line 10, corrects the obvious error in the recitation of the view of the implant of FIG. 8D (showing rows of ridges, projections or teeth) from “side” view to “top” view. The specification discloses that only the top or bottom surfaces, or both, of the implant have projections, teeth or grooves. See the specification at page 7, line 30 to page 8, line 2 (“In addition, **other external profiles** than the “D”-shaped profile are likewise **enabled** by **modifications of the methods and apparatuses disclosed herein for formation of the “D”-shaped external or internal profile.**”); page 8, lines 28-29 (“**Shapes** contemplated by this disclosure include, but are not limited to, elliptical shapes, D-shapes, **partially curved shapes**, and the like.”); and at page 9, lines 5-12 (“or an external feature may be machined into the upper and lower surfaces to prevent backing out of the implant upon insertion into the intervertebral space. This may be achieved by a number of means, such as by machining annular rings, indentations and **projections, ribbing or teeth** into the **upper, lower, or both surfaces** of the implant. In a preferred embodiment of this invention, the implant is passed through a set of opposing jaws bearing teeth which broach a tooth-shaped profile into the implant as it is forced through the jaws. Alternatively, the implant is passed several times over a ridged surface which cuts the desired tooth profile into the **upper, lower or both surfaces** of the implant.”)

The amendment to the paragraph, beginning at page 19, line 20, corrects the typographical error in line 8 of that paragraph from “line asper” to “linea aspera”. Support for the correct spelling of the term “linea aspera” is found in the same paragraph at page 19, lines 21-22. Additional recitation of “linea aspera” is found in the original description of the figures at page 3, line 19.

The amendment to the paragraph beginning at page 20, line 1 does not add new matter. The paragraph changes the term “figure” to “FIG” at relevant locations. In addition, the amendments to the paragraph more specifically refer to the “A” component of the figures rather than to figures by number only. Hence, the amendments to the specification do not add new matter.

The amendment to FIG. 12 (sheet 17/22), merely deletes FIGs. 12E and 12F which were previously added at the strong suggestion of the Patent Office in the Official

Action of 07/07/03 “to avoid abandonment of the application,” but which in the present Official Action are requested to be removed for allegedly adding new matter. Hence, the amendment to sheet 17/22, requesting substitution back to the originally filed sheet 17/22, does not add new matter.

The amendments to the claim 45 do not add new matter. Claim 45 has been amended to clarify that the “said surface” in line 6 refers back to the antecedent “one of said vertebral engaging surfaces.” In addition claim 45 has been amended to clarify the term “angling” which is now recited as “angled.” Support for teeth that “angle” toward the anterior of the implant is found in the specification at page 9, lines 12-13 (“Preferably, the thus formed teeth angle towards the anterior (convexly curved) face of the implant. . . .”). New claims 65-66 are directed to a subgroup of claim 44 wherein the “vertebral engaging surface” is “ribbing” which is free of the prior art.

For these reason, the amendments to the specification and claims do not add new matter.

### **Bases for Objection/Rejection**

The Patent Office has withdrawn previously prosecuted claims based upon a construction of the word “unitary.”

Claim 45 and 52-64 are rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite.

The Specification and Drawings are objected to under 35 U.S.C. § 132 because they allegedly introduce new matter into the specification.

Claims 45, 52-57 and 60-62 are rejected under 35 U.S.C. § 102(e) for allegedly being anticipated by U.S. Pat. 6,371,988 (Pafford).

Each of these bases for rejection and/or objection will be addressed in Sections I-IV, respectively, which follow.

## I. Election/Restriction

The Patent Office has withdrawn previously prosecuted claims 46-51, 59-59 and 63-64 based upon a construction of the word “unitary.” Specifically, the Patent Office contends that in relation to claims 46-51 and 63-64 that “the elected embodiment is constructed by an alternate method of production to produce **unitary** implants and not **assembled, stacked, joined etc.**” [Official Action at page 2, citing to the specification at page 19, lines 20 et seq.] The Applicants respectfully disagree.

The term “unitary” as relied upon by the Patent Office is not mutually exclusive of assembled, stacked or joined implants. Specifically, the specification teaches early in the disclosure that the term unitary encompasses the assembled and stacked implants:

For example, in a first such alternate method, implants of this invention are produced and then **stacked** to provide a **unitary implant** of the desired height dimensions. Such **stacked implants** may be maintained in a **unitary association** by drilling appropriate holes through the height of the implant, and inserting therein appropriate **retention pins** made from any desirable material, including cortical bone, bioabsorbable synthetic polymer, titanium or other metallic retention pins. Alternatively, the **stacked implants** may be retained in a **unitary association** by means of a **plug of cancellous bone**, hydroxyapatite or other biocompatible, osteoconductive or osteoinductive material, and press-fitting the stacked implants to achieve the desired height (see FIG. 9).

[Specification at page 5, lines 16-24; emphasis added in bold.]

Moreover, the specification refers to various “**methods**” for producing the various implants that are disclosed therein. The implants can be produced by more than one method. Further, in the last sentence of the above quote, the specification discloses that the stacked implants may be maintained in “**unitary association**” by use of a “**plug of cancellous bone.**” This is the same cancellous plug that the specification discloses is used in the implants of FIGs. 13-17. [Specification at e.g. page 21, line 1 (“FIG. 13 shows a device similar to that of FIG. 12, with a **cancellous plug inserted therein.**”); emphasis added in bold.] Moreover, the only difference in the implants of FIGs 12-17 (other than the presence/absence of a cancellous plug in the odd/even numbered FIGs, respectively) is size. See Table I at page 21. Further, Table I



reflects that the height of the implants of FIGs. 12 –17 is from 5-9 mm to 5-13 mm and thus is no greater than the height of the stacked implants. [Specification at page 17, lines 3-6 (“According to this embodiment of the invention, two implant blanks of known height are selected such that a unitary implant composed of both starting implants can be produced of a new desired height (e.g. a 6 mm high implant may be stacked with a 7 mm high implant to produce a 13 mm implant).”]

For all these reasons, the Applicants request that the claims currently under reconsideration be rejoined with claims 46-51, 59-59 and 63-64, which were withdrawn from prosecution.

## **II. 35 U.S.C. § 112, Second Paragraph**

Claims 45 and 52-64 are rejected under 35 U.S.C. § 112, second paragraph, for allegedly being indefinite. (Although claims 58-59 and 63-64 have been allegedly withdrawn, they are nonetheless subject to this basis for rejection.) According to the Patent Office, the term “said surface,” as used in claim 45, is “ambiguous” as to which surface. [Official Action at page 2.] In response, the Applicants have amended claim 45 to reflect that “said surface” refers back to the antecedent “at least one of said vertebral engaging surfaces” originally recited in lines 4-5 of claim 45. Accordingly, this basis for rejection has been rendered moot.

The Patent Office next contends that in claim 45, the phrase “angling toward the anterior end” is not understood. In response, the Applicants have amended the text in claim 45 to delete the term “angling” and to substitute therefor “angle”. The relevant phrase now recites “said rows of migration resistant projections, ribbing or teeth angling angled toward the anterior end of said spacer. . . .” Support for the term “angle” (as opposed to “angling”) is found in the specification at page 9, lines 12-13 (“Preferably, the thus formed teeth **angle** towards the anterior (convexly curved) face of the implant. . . .”); emphasis added in bold. It is respectfully submitted that one skilled in the art would understand what was meant by “teeth” that “angle” in a particular direction, since this is shown in the specification in FIGs. 1D, 6E, 6F, 6G, 6H, 6I, 7B, 12C, 13C, 14C, 15C, 16C and 17C. Moreover, the written description of FIG 1D in the specification states: “FIG. 1D shows a side view of

the implant 100 in which the inscribed feature 120 can clearly be seen in the top 110 and bottom 111 surfaces of the implant. In this view, it can be seen that the external feature 120 has the side profile of a **set of teeth**, all of which **angle toward** the anterior face 108 of the implant.” [Specification at page 10, lines 4-7; emphasis added in bold.] Thus, given the disclosure, one skilled in the art would understand what was meant by the amended phrase referring to projections, ribbing or teeth “angled toward the anterior end of said spacer.”

Separately, it is argued that reference to “teeth” that “angle” in a direction is a common phraseology in the English language. Specifically, the Applicants cite to the following Exhibits attached hereto:

Exhibit A: “Webster’s New World Dictionary of the American Language,” Gurlink Ed., Prentice Hall Press, Cleveland Ohio, (1986) at page 1267. The definition of a “saw” shows as figures A, C, D and E, saws with teeth angled in one direction.

Exhibit B-\_\_\_ are obtained from an internet search of the terms “angled teeth.” Exhibit B is from the website [www.gardenadvice.com](http://www.gardenadvice.com) and it discloses at page 2 that “The **teeth** on most pruning saws are **angled back** (they are **straight** on conventional saws). . . .” [Emphasis added in bold.] Note that the above disclosure refers to other teeth being “straight” (i.e., up or down) In this context, in a “straight” tooth, the centerline from the base of the tooth to the top of the tooth is “straight.” In an angled tooth, the centerline from the base of the tooth to the point is “angled” relative the vertical.

Exhibit C is from the website [www.gardenadvice.com](http://www.gardenadvice.com) and it discloses at page 1/2 that in a pole saw “the **teeth** are **angled back** to make the cutting action occur on the pull stroke rather than on the push stroke.” [Emphasis added in bold.] This is analogous to how the Applicants implant works. The teeth allow the implant to slide on the push stroke and bite into the vertebrae when pulled. This biting action prevents dislodging of the implant due to motion of the vertebrae.

Exhibit D is from the site Aussie Assist Tourism Services. At page 4/7, the reference describes the teeth of the great white shark, stating that the shark's mouth reveals "row upon row of razor sharp serrated **teeth, angled inwards** to assist in the 'shredding' process." [Emphasis added in bold.]

Exhibit E is from the website "Green Keepers Spikeless Golf Cleats" and it describes on pages 1/3 and 2/3 Diamond Back™ golf cleats as having "oversized traction **teeth, angled outward. . .**" [Emphasis added in bold.]

Exhibit F is from the website [www.walleyecentral.com](http://www.walleyecentral.com) and it describes on page 2/4 what every fisherman knows—that a walleye's "**teeth are angled inward** to prevent easy escape [of prey]." [Emphasis added in bold.]

Exhibit G is from Llamapaedia, a website devoted to llamas and alpacas. It discloses at pages 1/3 to 2/3 that the llamas and alpaca males have (canine) "fighting **teeth** [that] are very sharp and **angled towards** the back of the mouth." [Emphasis added in bold.]

Thus, the English language is replete with examples of reference to teeth that are angled in a particular direction. This use in the language, combined with the Applicants' disclosure and figures would allow one skilled in the art to understand what is meant by the phrase "said rows of migration resistant projections, ribbing or teeth ~~angling~~ angled toward the anterior end of said spacer. . . ."

As its next basis for rejection, the Patent Office inquires "does 'angling toward the anterior end' describe all three, projections ribbing, and teeth; or just one [--] teeth?" [Official Action at page 2.] In response, the relevant phrase recites "said **rows** of migration resistant projections, ribbing or teeth **angled** toward the anterior end of said spacer. . . ." Thus, it is the "rows" of any one of the three that are "angled."

In addition, the Patent Office asks "what is the difference between projection, ribbing, or teeth?" [Official Action at page 3.] The Patent Office also asks to

be directed to support in the specification. [Official Action at page 3.] Finally, the Patent Office asks “what does the elected embodiment have?” [Official Action at page 3.] The Applicants respectfully submit that the words “projections”, “ribbing” and “teeth” are every day words that are not expressly defined in the specification. The “projections” project out of the plane of the surface. “Ribbing” are generally parallel projections out of the surface. Finally, the term “teeth” is a well-known term in the English language and in the art (see Pafford). In answer to the Patent Office’s question, the Applicants’ elected invention has all three, depending upon the perspective. Viewed from the top, the Applicants’ claimed implant has projections from the top surface or ribbing (a series of substantially parallel projections). The specification discloses that these surface features for preventing the implant from backing out are made by passing the surface of the implant over a “ridged surface”:

Alternatively, the implant is passed several times over a **ridged surface** which cuts the desired tooth profile into the upper, lower or both surfaces of the implant. Preferably, the thus formed teeth angle toward the anterior (convexly curved) face of the implant to prevent backing out of the implant once it is inserted into an appropriately shaped cavity formed in the intervertebral space in an anterior aspect of the cervical spine.

[Specification at page 9, lines 11-15; emphasis added in bold.]

One skilled in the art recognizes that the “ridged surface” referenced above is a series of “ridges” or “ribs” that cut a mirror image surface of ridges or ribs in the surface of the implant. The fact that the specification also refers to these as “teeth” is a question of the perspective from which they are viewed. The specification expressly discloses that when these surface projections (features) are viewed from the side perspective, they look like “teeth”:

In FIG. 1C, there is shown a **top view** of an embodiment of the implant 100 in which an **external feature 120** has been inscribed onto the top 110 and bottom 111 surfaces of the implant . . . **FIG. 1D** shows a **side view** of the implant 100 in which the inscribed feature 120 can clearly be seen in the top 110 and bottom 111 surfaces of the implant. **In this view, it can be seen that the**

**external feature 120 has the side profile of a set of teeth**, all of which angle toward the anterior face 108 of the implant.

[Specification at page 10, lines 1-7; emphasis added in bold.]

FIG. 1C corresponds to parallel FIG. 12A of the elected invention and FIG. 1D corresponds to parallel FIG. 12B of the elected invention. Thus, when the “external feature(s)120” are viewed from the top (in FIGs. 1C or 12A), these features in their substantially parallel form appear as projections or ribbing. When viewed from the side profile, they appear as “projections” or “teeth” (FIGs. 1D or 12B).

For these reasons, claim 45 and its dependents (claims 52-64) are definite and would be understood by one skilled in the art.

### **III. New Matter Objection to the Drawings and Specification**

The Patent Office has objected to the amendment filed 12/08/03 for allegedly introducing new matter into the drawings and specification. However, the Applicants amendment to the Drawings, adding FIG. 12E and 12F on sheet 17/22 was made in response to the Official Action of 07/07/03 “to avoid abandonment of the application.” The amendment to the specification was made to refer to FIGs. 12E and 12F. However, in the present Official Action, the Patent Office states “**Applicant is required to cancel the new matter in the reply to this Office Action.**” [Official Action at page 3; emphasis in original.] To facilitate the prosecution on the merits, the Applicants have amended the drawings and specification to delete the text previously introduced at the Patent Office’s urging. Accordingly, this basis for objection has been rendered moot.

### **IV. 35 U.S.C. § 102(e) over Pafford**

Claims 45, 52-57, and 60-62 are rejected under 35 U.S.C. § 102(e) for allegedly being anticipated by U.S. Pat. 6,371,988 (Pafford). According to the Patent Office, Pafford discloses “numerous embodiments of [a] polygonal cortical spinal spacer.” [Official Action at page 4.] The Patent Office further contends that “figures 29-42 [of Pafford] teach[] a similar embodiment to applicant’s figure 1 which is fully capable of being stacked or placed juxtaposition (see also figure 24 for juxtaposition).” [Official Action at page 4.] Finally, the

Patent Office cites to figures 39 and 40 for “teaching migration resistant projections” and “interprets **figures 29-42** [of Pafford] being ‘substantially diamond shaped.’” [Official Action at page 4; emphasis added in bold.] The Applicants respectfully submit that Pafford is not anticipatory of claims 45, 52-57, and 60-62.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegall Bros. v. Union Oil*, 814 F.2d 628, 631 (Fed. Cir. 1987). In the present case, the Patent Office is relying upon a comparison of terms “facet” that never appear in the Applicants’ claims. Independent claim 45 recites as an element that the spacer “rows of migration resistant **projections, ribbing or teeth angled toward the anterior end of said spacer** to prevent said spacer from backing out from between said vertebrae.” [Emphasis added in bold.] This is shown in Fig. 1D of the Applicants’ invention and is described in the specification at page 10, line 7 (“a set of teeth, all of which angle toward the anterior face 108 of the implant.”). In contrast, the **only** alleged disclosures of rows of teeth in Pafford are at Figs. 39 and 40. [Official Action at page 5.] Fig.39 of Pafford discloses a “waffle . . . pattern” [Pafford at col. 13, line 9] wherein each indentation and ridge is symmetrical and not biased in any direction. Figure 40 of Pafford discloses projections or teeth that are symmetrical (straight up) and not angled toward the anterior end. Accordingly, Pafford is not anticipatory of claim 45 or its dependents (claims 46-64). Nevertheless, the Patent Office argues that “Pafford teaches migration resistant projections 205 which have an **angled (sloped) forward facet** and an **angled rearward facet**” and that “Applicants’ device has an **angled rearward facet** and an **angled forward facet**.” [Official Action at page 5.] However, the words “facet” never appear anywhere in the Applicants’ claims. The Patent Office then contends that “[b]ecause Pafford et al uses an angled rearward facet as does the applicant, the projection is **considered** ‘angling toward the anterior end.’” [Official Action at page 5; emphasis added in bold.] The Applicants respectfully disagree. The Patent Office’ considered position is contrary to the common meaning of the phrase “angled toward” as discussed in detail in Section II and as supported by Exhibits A-G. On their face, the teeth 205 on Pafford’s device are straight up and not advantageously “angled toward the anterior end of said spacer.” For all these reasons, Pafford would not be anticipatory of claims 45, 52-57, and 60-62.

Claim 50, which has been withdrawn from consideration, is directed to “The spacer of claim 46 in assembled form, wherein said polygon has a substantially diamond shaped external profile.” The Patent Office interprets Figures 29-42 of Pafford as being “substantially diamond shaped,” notwithstanding that Figures 31, 36 and 42 are rectangles, Figure 33 is a stack of ovals and Figures 34 and 37 are surgical instruments. The Applicants will address the rejection in relation to Figures 29-30, 32, 35, and 39-41 which are D-shaped implants. As support for its position, the Patent Office cites to a dictionary definition of “diamond” and asserts that “it is the Examiner’s opinion that the device is substantially diamond shaped, more so than applicants device.” The definition relied upon by the Patent Office is the following:

diamond- 2. A figure with **four equal sides** forming two inner obtuse angles and two inner acute angles; a rhombus or lozenge.

However, the D-shaped implants of Pafford’s figures have one “curved” outside surface. A curved outside surface connecting two points is inherently longer than a straight side. Hence, the D-shaped implants of Pafford do not fit the basic definition of a diamond. Secondly, two of the angles in the D-shaped implants of Pafford are right angles—which are neither acute (less than a right angle) nor obtuse (greater than a right angle). For this reason also, the D-shaped implants of Pafford are not substantially diamond shaped. Finally, the entire basis of a diamond shape is that the walls are straight or at least symmetrical relative to an opposing wall, or a central axis drawn through opposing points. The single curved wall in Pafford defeats the concept of even being “substantially diamond shaped.”

As support for the Applicants’ position, the Applicants cite to a dictionary definition of “diamond” that is similar to the Patent Office’s definition but that includes a figure of a diamond (See Exhibit ) which is worth a thousand words:

diamond- 4: a square or rhombus-shaped configuration **usu. having a distinctive orientation (as by having a diagonal perpendicular to the horizontal)** [See the Figure in Exhibit H.]

[Exhibit H: Webster’s Third New International Dictionary of the English language Unabridged, Merriam Webster Inc, Springfield MA, 2002 at page 624; emphasis added in bold.]

\* \* \*

diamond- **3** : a square or rhombus-shaped figure **usually oriented with the long diagonal vertical**.

[Merriam Webster's Online Dictionary: emphasis added in bold.]

\* \* \*

diamond- **2.** a shape with four **straight sides** of equal length, forming two opposite angles which are wide and two which are narrow:  
Joe's socks had diamond patterns on them.

[Cambridge Advanced Learner's Dictionary, Online; emphasis added in bold.]

Thus, the figure of the diamond is shown in Exhibit H with all sides being straight (and the opposing angles being equal). Accordingly, the D-shaped implants of Pafford, which have a curved face and opposing angles that are not equal, are not "diamond shaped" or "substantially diamond shaped." Moreover, a diamond shape has a particular orientation, wherein one of the diagonals is horizontal. In Applicants FIG 12A, the implant is shown in this "diamond" orientation. In use, the implant is inserted between the vertebrae along a diagonal axis (which is inherently perpendicular to the horizontal diagonal), thus maintaining its "substantially diamond" shape and orientation. In FIG 12A, the diamond shaped implant is shown in its orientation relative to a D-shaped implant (broken line). Both Pafford and the Applicants' invention disclose that D shaped implants are inserted with an orientation such that the curved face is "anterior." In this orientation, the D-shaped implant is inserted with an orientation 45° relative to each diagonal and not along one diagonal axis (which is inherently perpendicular to the horizontal diagonal). For these reasons also, the D-shaped implants of Pafford and not "substantially diamond shaped" or more diamond-shaped than the Applicants.



## CONCLUSION

In view of the arguments herein, newly withdrawn claims 46-51, 58-59 and 63-64 may be properly rejoined with the claims currently under consideration.

In view of the amendments to claim 45 and arguments herein, the rejection of claim 45 and its dependents (52-64) under 35 U.S.C. § 112, second paragraph, for indefiniteness has been rendered moot.

In view of the amendment to the specification and drawings, reversing a prior amendment, all bases for objection based upon an alleged insertion of new matter have been rendered moot.

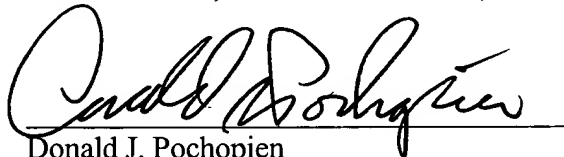
In view of the arguments herein, the rejection of claims 45, 52-57, and 60-62 under 35 U.S.C. § 102(e) for allegedly being anticipated by U.S. Pat. 6,371,988 (Pafford) has been rebutted and or rendered moot. In addition, Applicants have shown that newly withdrawn claim 50, would not have been anticipated by the D-shaped implants of Pafford.

The allowance of claims 45-66 is respectfully requested.

Respectfully submitted,

**McANDREWS, HELD & MALLOY, LTD.**

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Date: July 08, 2004

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Gulf + Western Building

One Gulf + Western Plaza

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Dictionary Editorial Offices: New World Dictionaries,  
850 Euclid Avenue, Cleveland, Ohio 44114.

Manufactured in the United States of America

25 24 23 22 21 20 19 18

Library of Congress Cataloging in Publication Data  
Main entry under title:

Webster's New World dictionary of the American  
language.

1. English language—Dictionaries. 2. Americanisms.

I. Guralnik, David Bernard, 1920-

PE1628.W5633 1986 423 85-26216

ISBN 0-671-41809-2 (indexed)

ISBN 0-671-41807-6 (plain edge)

ISBN 0-671-41811-4 (pbk.)

ISBN 0-671-47035-3 (LeatherKraft)

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**Savai-i** (sā vī'ē) largest & westernmost island of Western Samoa: 662 sq. mi.; pop. 32,000

**sa-van-na**, **sa-van-nah** (sə vān'ə) n. [Sp. *sabana*, earlier *savanna* < the Taino name] a treeless plain or a grassland characterized by scattered trees, esp. in tropical or subtropical regions having seasonal rains

**sa-van-nah** (sə vān'ə) [*<* a Muskogean var. of the native name of the Shawnees] 1. river forming the border between Ga. & S.C., flowing southeast into the Atlantic: 314 mi. 2. seaport in SE Ga., near the mouth of this river: pop. 142,000

**sa-vant** (sə vānt', sav'ant; Fr. *sā vān'*) n., pl. -vants' (-vānts', -ants; Fr. -vān') [Fr., orig. prp. of *savoir* < L. *sapere*: see *SAP*] a learned person; eminent scholar

**sa-vate** (sə vāt', -vat') n. [Fr., orig., old shoe: see *SABOT*] a form of boxing in which stiff-legged kicks as well as punches may be used

**save** (sāv) vt. **saved**, **sav'ing** [ME. *saven* < OFr. *sauver*, *saluer* < L. *salvare* < *salvus*, *SAFE*] 1. to rescue or preserve from harm, danger, injury, etc.; make or keep safe 2. to keep in health and well-being: now only in certain formulas [God *save* the king!] 3. to preserve for future use; lay by (often with *up*) 4. to prevent or guard against loss or waste of (to *save* time, to *save* a game) 5. to avoid, prevent, lessen, or guard against (to *save* wear and tear) 6. to treat or use carefully in order to preserve, lessen wear, etc. 7. *Theol.* to deliver from sin and punishment —vi. 1. to avoid expense, loss, waste, etc.; be economical 2. to keep something or someone from danger, harm, etc. 3. to put by money or goods (often with *up*); hoard 4. to keep; last 5. *Theol.* to exercise power to redeem from evil and sin —n. *Sports* an action that keeps an opponent from scoring or winning —*SYN.* see *RESCUE* —**sav'a-ble**, **save'a-ble** adj. —**sav'er** n.

**save<sup>2</sup>** (sāv) prep. [ME. *sauf* < OFr., lit., *SAFE*: sense developed from use in absolute constructions, e.g., *sauf le droit*, right (being) safe] except; but —*conj.* 1. except; but 2. [Archaic] unless

**save-all** (sāv'ol') n. any of a number of devices which prevent waste or loss; specif., a) a sail placed to catch wind passing by the regular sails b) a net spread between a ship and pier while cargo is being loaded or unloaded

**save-loy** (sav'oi loy') n. [altered < Fr. *cervelas* < MFr. *cervelat* < It. *cervellata* < *cervello*, the brains < L. *cerebellum*: see *CEREBELLUM*] in England, a highly seasoned, dried sausage

**sav-in**, **sav-ine** (sav'in) n. [ME. *savin* < OE. *safene* & OFr. *savine*, both < L. (*herba*) *Sabina*, lit., Sabine (herb), *savin*] 1. a low, spreading Eurasian juniper (*Juniperus sabina*) of E. N. America and Europe whose leaves and tops yield an oil (*savin oil*) used in perfumery 2. *same as* RED CEDAR (sense 1 a)

**sav-ing<sup>1</sup>** (sāv'in) adj. that saves; specif., a) rescuing; preserving b) economizing or economical c) containing an exception; making a reservation [a *saving clause*] d) compensating; redeeming [a *saving grace*] —n. 1. the act of one that saves 2. [often pl., with *ing. v.*] any reduction in expense, time, labor, etc. [a *saving(s)* of 10% is effected] 3. a) anything saved b) [pl.] sums of money saved 4. *Law* a reservation; exception

**sav-ing<sup>2</sup>** (sāv'in) prep. [Now Rare] 1. with due respect for [saving your presence] 2. with the exception of; except; save —*conj.* [Now Rare] except; save

**savings account** an account in a savings bank  
**savings and loan association** a depositor-owned organization that solicits savings to be placed in share accounts on which dividends are paid and from which mortgage loans on homes or real estate are made

**savings bank** 1. a bank in which savings may be deposited; esp., a banking establishment whose business is to receive and invest depositors' savings, on which it pays interest 2. a small container with a slot for receiving coins to be saved

**sav-ior**, **sav-iour** (sāv'yar) n. [ME. *saueur* < OFr. < LL. *salvator*, one who saves < *salvare*, to *SAVE*: in LL. (Ec.), *Saviour*, transl. of Gr. (Ec.) *sōtēr*] a person who saves —*the Saviour* (or *Savior*) 1. God 2. Jesus Christ

**sa-voie** (sā vwa') Fr. name of SAVOY<sup>2</sup>

**sa-voir-faire** (sav'wār fer') Fr. *sā vwar fer'*) n. [Fr., to know (how) to do] ready knowledge of what to do or say, and of when and how to do or say it —*SYN.* see *TACT*

**sa-voir-vi-vre** (sā vwar vīvr') n. [Fr., to know (how) to live] good breeding; good manners

**sa-vo-na-ro-la** (sāv'ō nā rō'lā; E. *sav'ə nā rō'lā*), **Gi-ro-la-mo** (jērō'lā mō') 1452-98; It. monk; religious & political reformer: burned at the stake for heresy

**sa-vor** (sāv'var) n. [ME. < OFr. *savour* < L. *sapor*, akin to *sapere*: see *SAP*] 1. a) that quality of a thing which acts on the sense of taste or of smell b) a particular taste or smell 2. characteristic quality; distinctive property 3. perceptible trace; tinge 4. power to excite interest, zest, etc. 5. [Archaic] repute —vi. 1. to have the particular taste, smell, or quality; smack (of) 2. to show traces or signs (of) [rudeness *savoring* of contempt] —vt. 1. to be the source of the flavor or scent of; season 2. to taste or

smell, esp. with relish 3. to enjoy with appreciation; dwell on with delight Also, Brit. sp., *sa'vour* —**sa'vor-er** n. —**sa'vor-less** adj. —**sa'vor-ous** adj.

**sa-vor-y<sup>1</sup>** (sāv'vār ē) adj. -vor-i-er, -vor-i-est [ME. *savouri* < OFr. *savouré*, pp. of *savourer*, to taste < *savour*, *SAVOR*] 1. pleasing to the taste or smell; appetizing 2. pleasant, agreeable, attractive, etc. 3. morally acceptable; respectable 4. salty or piquant; not sweet [a *savory relish*] —n., pl. -vor-ies in England, a small, highly seasoned portion of food served at the end of a meal or as an appetizer Also, Brit. sp., *sa'vour-y* —**sa'vor-i-ly** adv. —**sa'vor-i-ness** n.

**sa-vor-y<sup>2</sup>** (sāv'vār ē) n. [ME. *saverey* < OFr. *savoreie*, altered (prob. after *savour*, *SAVOR*) < L. *satureia*, *savory*] any of a genus (*Satureia*) of aromatic mints; esp., *summer savory* (*Satureia hortensis*) and *winter savory* (*Satureia montana*), both native to Europe and used in cooking **SA-VOY<sup>1</sup>** (sā voi') family of Europe ruling Piedmont, the duchy of Savoy, the kingdom of Sardinia, and later (1861-1946) Italy

**SA-VOY<sup>2</sup>** (sā voi') region in SE France, on the borders of Italy & Switzerland: a former duchy & part of the kingdom of Sardinia: annexed by France, 1860

**sa-voÿ** (sā voi') n. [Fr. (*chou de*) *Savoie*, (cab- bage of) Savoy] a kind of cabbage with crinkled leaves and a compact head: also *savoy cabbage*

**SA-VOY-ARD** (sā voi'ard, sav'oi yārd'; Fr. *sā vwa yar'*) n. 1. a native or inhabitant of Savoy 2. [*<* the *Savoy*, London theater where the operas were first produced] an actor producer, or enthusiastic admirer, of Gilbert and Sullivan operas —*adj.* of Savoy, its people, or culture

**sav-vy** (sav'ē) vi. -vied, -vy-ing [altered < Sp. *sabe* (usted), do (you) know? < *saber*, to know < L. *sapere*: see *SAP*] [Slang] to understand; get the idea —n. [Slang] 1. shrewdness or understanding 2. know-how —*adj.* -vi-er, -vi-est [Slang] shrewd or discerning

**saw<sup>1</sup>** (sō) n. [ME. *sawe* < OE. *sagu*, akin to G. *säge*, Du. *zaag* < IE. base \**sek-*, to cut, whence L. *secare*, to cut, OE. *seax*, knife] 1. a) a cutting tool, of various shapes and sizes and worked by hand or machinery, consisting essentially of a thin blade or disk of metal, usually steel, the edge of which is a series of sharp teeth b) any of various tools or devices somewhat like this but with a sharp edge instead of teeth 2. a machine for operating a saw or saws —*vt.* **sawed**, **sawed** or chiefly Brit. **sawn**, **saw'ing** 1. to cut or divide with a saw 2. to shape or form with a saw 3. to make sawlike cutting motions through (the air, etc.) 4. to operate or produce with a to-and-fro motion suggestive of that used in working a saw [to *saw* a knife through meat, to *saw* a tune on a fiddle] —*vi.* 1. to cut with or as with a saw or as a saw does 2. to be cut with a saw [wood that *saws* easily] 3. to make sawlike cutting motions —*★* **saw wood** [Slang] to snore or sleep —*saw'er* n.

**saw<sup>2</sup>** (sō) n. [ME. *sawe* < OE. *sagu*: see *SAP*] an old saying, often repeated; maxim; proverb —*SYN.* see *SAVING*

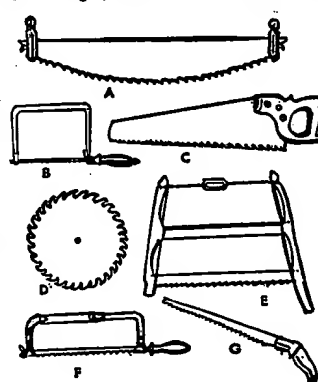
**saw<sup>3</sup>** (sō) pt. of *SEE<sup>1</sup>*

**SA-WATCH MOUNTAINS** (sā wäch') [*<* AmInd. name < ?] range of the Rocky Mountains, in C. Colo.: highest peak, Mt. ELBERT  
**saw-bones** (sō'bōnz') n. [Slang] a doctor; esp., a surgeon  
**saw-buck** (-buk') n. [Du. *zaagbok* < *zaag*, *SAW<sup>1</sup>* + *bok*, *BUCK<sup>2</sup>*] 1. a sawhorse, esp. one with the legs projecting above the crossbar 2. [from the resemblance of the crossed legs of a sawbuck to an X (the Roman numeral for 10)] [Slang] a ten-dollar bill

**saw-dust** (-dust') n. minute particles of wood formed in sawing wood



SAVOY



SAWS

(A, crosscut; B, coping; C, handsaw; D, circular; E, buck-saw; F, hacksaw; G, keyhole)

fat, āpe, cār; ten, ēven; is, bīte; gō, hōrn, tōol, look; oil, out; up, fār; get; joy; yet; chin; she; thin, then; zh, leisure; n, ring; a for a in ago, e in agent, i in sanity, o in comply, u in focus; \* as in able (ā'b'l); Fr. bāl; ē, Fr. coeur; ō, Fr. feu; Fr. mon; ō, Fr. coq; ū, Fr. duc; r, Fr. cri; H, G. ich; kh, G. doch. See inside front cover. ★ Americanism; † foreign; \* hypothetical; < derived from



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## pruning tools

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### Pruning Saws

If you plan to do some serious pruning, you'll need a pruning saw—it's the third most important item after hand shears and loppers. Pruning saws come in styles that can handle limbs from 2 to 25 inches in diameter.

Because the teeth on the standard curved pruning saw are angled back, the cutting action is on the pull. This makes it easier to do overhead work—the curve in the blade automatically forces the teeth into the kerf (the cut) as you pull.

The blade should be made of tempered steel. Although tempering may not be marked, if you snap the blade with your fingernail it will emit a clear, ringing sound if it is tempered. The blade should be flexible; that way, when it catches and bends in the kerf, it will snap back to its original straight position. When a saw blade gets bent, it must be replaced.

Check the number of teeth per inch. They usually run from four to eight. Four to six teeth per inch is good for green or sap wood; six to eight teeth per inch is a better choice for hard or dry wood. If you have a mixture of woods, consider a double-edged saw with both types.

Look carefully at each individual tooth. On a good saw, each tooth will be beveled to provide the cutting edge. Teeth on cheaper saws have no cutting bevel.

### Curved-Blade Saw

This is the workhorse saw for nursery people and home pruners. This spring steel blade is 12 to 16 inches long; six teeth per inch do all-purpose cutting. The handle is made of ash or hickory. It has a comfortable grip for sawing at any angle, including overhead.

### Straight Double-Edged Saw

This is a good combination saw for medium and heavy pruning. One side has six or eight teeth per inch with small gullets for cutting hard or dry wood. The other side has four to six larger, raker teeth per inch for quickly cutting green or sap wood. When using these saws, be careful not to inadvertently gash one limb with the saw's top edge while trying to saw another limb. Wounds like these subject the tree to disease and pests.

### Pole Saw

The above saws can also come on the end of a long pole for reaching high or inaccessible branches. See *Pole Pruners* for a description of handles.

### Bow Saw

These saws come in a wide variety of sizes to cut wood anywhere from 10 to 25 inches in diameter. If you plan to use a bow saw for pruning, choose a type with a tapered nose. This enables the front end to slip past other limbs on the tree more easily. A tension clip holds the blades in position. Because of this tension, the metal is much thinner than it is on saws that must support their own rigidity. Therefore, it makes a smaller kerf and cutting is faster and easier than with an ordinary pruning saw. The bow saw is definitely preferred for cutting large limbs or in uncrowded cutting conditions.

### Saw Care

After use, remove vegetation from the saw blade and wipe the blade down with an oily rag or spray with a penetrating oil. Since the teeth on most pruning saws are angled back (they are straight on conventional saws), they are difficult to sharpen by machine. This means they must be

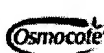
sharpened by hand. You can pay extra to have this done professionally, or you can do it yourself—probably well enough, too. First place the saw between two boards in a vise to keep the blade from bending while you work on it. Use a web file or a knife file about 6 to 8 inches long. Note that every tooth on the saw is beveled at an angle opposite the one preceding it. Cheap saws may have no bevel but be ground straight across like a crosscut saw.

Start sharpening at one end. Follow the existing bevel, which should be about 65 degrees. If there is no bevel, file straight across. Simultaneously file the leading bevel of one tooth and the trailing bevel of the adjoining tooth. Skip every other gullet and file the beveled edges first on one side, then —reversing the saw—on the other side.

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## pruning tools

## Pole Pruners

Recently, the pole pruner has become popular, probably because it largely eliminates the need for a ladder. You may prefer a ladder, however—it will keep you from getting a crick in your neck and will let you reach every branch, even those on top.

The pruning head of the pole pruner has a bypass-action blade (which sometimes has a ratchet action) and a pronounced hook. The head works either by a lever and metal rod or by a rope with single or double pulleys. Pruning heads should be made of steel or heavy aluminum alloy. Because pole pruners are subjected to great stress, the cheaper heads will not hold up.

The handle is made of wood, fiberglass, or metal. The fiberglass or metal types are available in handy telescoping models. The two telescoping fiberglass sections are each 6 feet long. They will adjust to any length between 6 and 11 feet. There are two ways to lock poles into position: by a wing nut or by twisting one pole within the other (this is quick, easy, and very secure).

Metal poles are not recommended where electric lines run through trees, since they present a danger of shock.

To use the pole pruner, slip the hook over the branch where you want to make the cut. Put tension on this hook and then make the cut by pulling down the lever or rope. After each cut, use the hook to pull the branch out of the tree to keep the tree clear as you work. You don't want to leave unsightly branches or risk having them fall on someone later. Pulling out the cut branches also makes it easier to see what you've been doing.

You can also buy a pole pruner that has a saw attachment. The 12 to 16-inch saw blade is curved, and the teeth are angled back to make the cutting action occur on the pull stroke rather than on the push stroke. This attachment is used for pruning bigger branches. It can easily be detached when not needed.

Keep the cutting heads and saw blades on all pole pruners clean, sharp, and lightly oiled. The teeth on a saw blade are very long, and the set or spread of the teeth is much greater than on a regular saw. Use a slim, tapered, triangular file to sharpen these teeth.

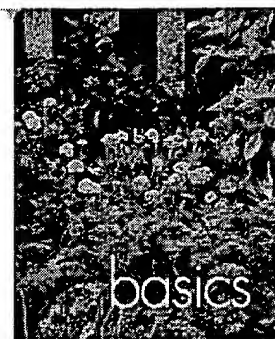
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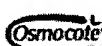
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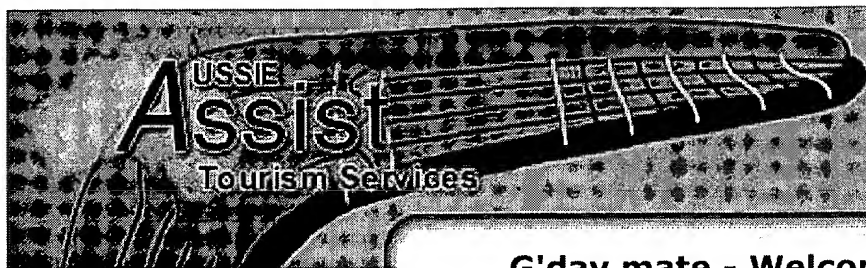


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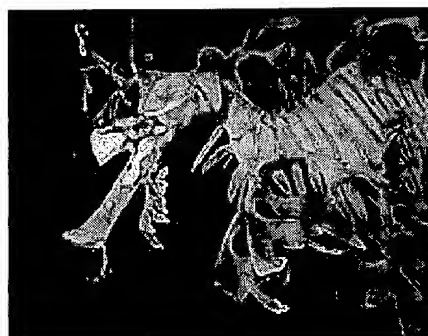
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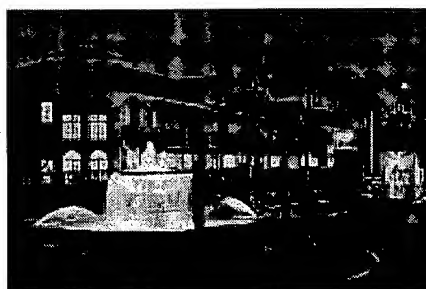
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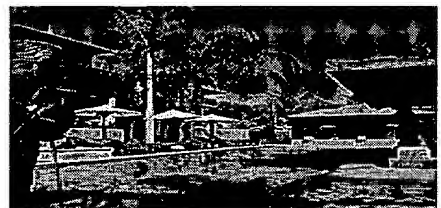
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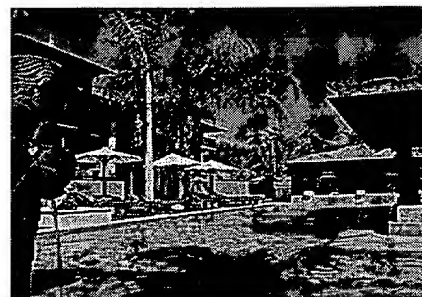
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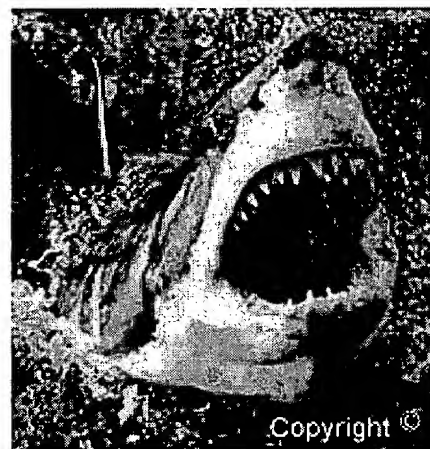
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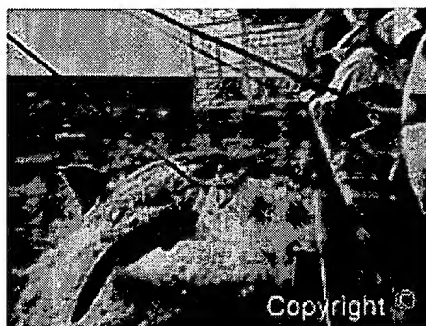


teeth, angled inwards to assist in the "shredding" process as he feeds - your heart will be pounding so fast you will feel like it's going to jump right out!

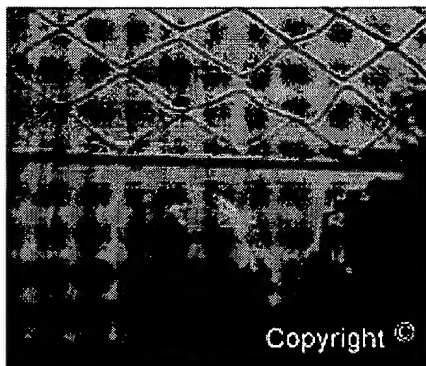
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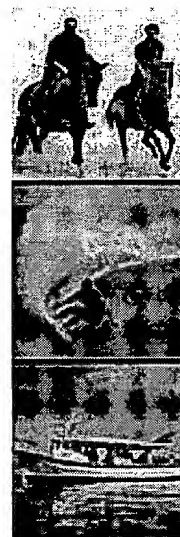
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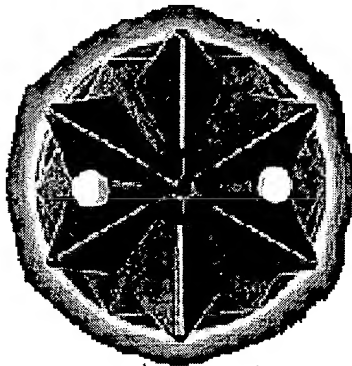
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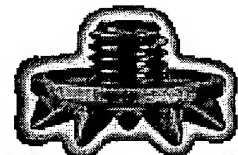
**New Diamond Back Golf Cleats™ are designed with oversized traction teeth, angled outward, for superior traction. And the unique faceted design delivers traction with less surface area at the points of contact for effective damage control. New advanced polymers and wear-resistant engineering deliver diamond-like durability and higher average rounds per set.**

**Diamond Back Golf Cleats™ are available to fit all fastening systems and come in a unique resealable Pro Pack which fits efficiently in your golf bag.**

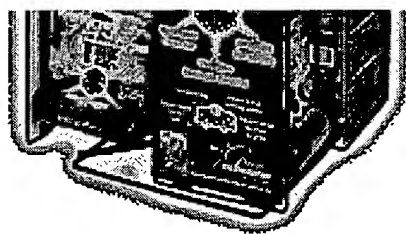
**The next time you do battle with the game, attack from the ground with Diamond Back Golf Cleats.**



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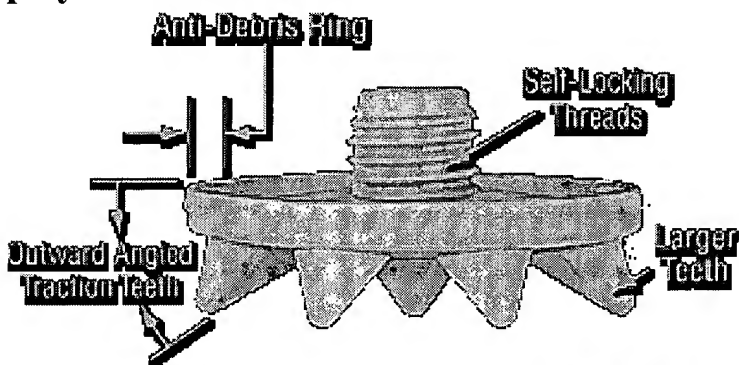


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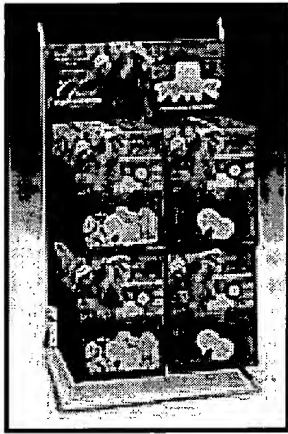
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## **"Don't sell yourself short"**

One of the most frustrating events in a walleye fisherman's day is to miss numerous fish to the short bite. For a long time I was resigned to the fact that some days walleyes were just nibblers. On those days I would be frustrated by chomped off half crawlers and minnows skinned alive that signify the disheartening short bite. Oppositely, I remember great days of guiding when "we caught thirty, but we must have missed thirty more!" I realized I needed to reexamine my approach on both the tough and hot bites to put more fish in my boat. In the paragraphs to follow I will examine why short bites occur, and several techniques that I utilize to combat the dreaded short bite.

Several variables come into play with a short bite, and they all point back to how a walleye feeds. As you probably know, walleyes flare their gills and inhale the water around their prey, thus sucking the offering into their mouths. Their teeth are angled inward to prevent easy escape. They are designed to be very lethal predators. There are two variables that I have found that hamper this process. First off, the mood of the walleyes. If a walleye is in a very positive feeding mood it will aggressively suck in your offering. On the other hand neutral or negative mood walleyes will attempt to suck in your offering without much enthusiasm. Secondly, the size of the fish. Small walleyes even aggressively feeding do not move as much water through their gills, and therefore are less efficient feeders. On the other hand, large walleyes have no problem folding up a 6-8 inch baitfish on a daily basis.



Knowing the basics of how walleyes feed, make the reasons for short hits apparent. Something in your offering is keeping the walleye from flaring his gills and moving your bait into its mouth. Your offering could be too heavy, or your bait could be moving away from the attack. Rather than dwell on all the things that can go wrong, let's focus on what we can do about it.

Combating short bites has become a passion of sorts for me. Each and every presentation I make to the fish has been adjusted in an attempt to make my offering easily devoured.

Whether rigging, jigging, bottom bouncing, or bobbering, your live bait presentation can be tweaked to connect with more fish. For all live bait presentations I go with the lightest and limpest line possible. Many walleye fisherman already fish low diameter lines in an attempt to fool the walleye's eyesight. In my opinion I catch more walleyes on light line not because of the visibility factor, but rather because light line can be moved easier into a walleyes mouth at the time of the attack. Besides light line, each presentation has its own subtle variances that will put more fish in your boat.

Lindy rigging has become a completely different technique for me over the past few

seasons. I used to pull Lindy rigs all over the place, and they certainly caught their fair share of fish. But I was also missing a lot of bites. I would try to feed the fish some line, only to miss numerous fish over the course of a day. When I applied my knowledge of short bites to Lindy rigging I began changing my approach.

Nowadays if I am rigging I am stopping and going constantly instead of pulling rigs at one steady pace. I either pump my rod tip, or slip the motor in and out of reverse. This stop and go pace allows for some slack in my presentation, and when there is slack in your line, walleyes meet little resistance as they flare their gills around the bait. For those of you who utilize floats, or floating jig heads, they can also be a great way to add a pivot point or a little slack to your presentation. I also experiment with where I hook my live bait. For example, a crawler hooked through the middle is going to be inhaled much easier then a crawler stretched out with a single hook at the tip. Additionally I always add one colored bead above my hook. This offers some flash, but I also believe it moves the point of attack further up on my bait, improving hook up percentages. Even with all these precautions, sometimes it takes some odd techniques to finish the deal.

One such technique I read about years ago that works well is coiling your leader. It is a simple process. Take a high memory line and make many wraps around a cylinder. The leader will then come off looking coiled like a slinky. If you use this as your last four feet to your bait, you will always have a degree of slack to combat short hits. Another odd technique that I have been experimenting with involves tying a ball of steelhead yarn above your hook. The yarn obviously provides some color, but more importantly if you realize a walleye's teeth are angled inward, you will also realize that the yarn is very hard for a walleye to spit out, once he has gotten the bait inside his mouth. Just another addition for your short bite arsenal!

Many of the same techniques I use Lindy rigging, I also employ when I am utilizing bottom bouncers. Most bottom bouncer fishing involves pulling spinners, but I prefer to use bottom bouncers in place of Lindy's in deeper water. I often fish my bottom bouncer with a plain hook and a long leader. A five to eight foot leader coupled with a stop and go presentation on a bouncer is a killer combination in the fight against short bites.

We have all missed our share of fish jigging. If you take the time to make some adjustments, this frustration can be avoided. Once again, light line is key. Also, you have often heard the saying "get by with the lightest jig possible." The simple fact is light jigs are more easily devoured then heavier jigs. Also try adding soft plastic when you are experiencing short hits. Plastic adds bulk, but not a lot of weight to your offering. Bulk without weight, allows for the jig take up more surface area. Thus, the bait is more easily moved into the walleyes mouth. I am also conscious of how I hook my live bait while jig fishing. A simple rule of thumb, the farther onto the shank of the hook you place live bait, the closer the hook will be to the walleye's mouth.

For slip bobber fishing I make two quick adjustments that can make a real difference. The first is to experiment with the amount of weight below the bobber. I add weight until the bobber is just visible enough for me to keep an easy eye on it. This allows the fish to grab my dangling bait without the resistance of having to pull the entire bobber under water. Secondly, I love attaching all my live bait under a bobber to a plain hook

directly hooked through the middle. When you're on a dock this summer, pull out your bobber rod, attach a leech through the middle, and lower it into the water, you will be impressed by the thumping of a lively leech hooked through the center. Any walleye that makes the commitment to engulf my offering is going to have no problem finding the hook.

In addition to live bait presentations, artificial baits like cranks and spinners can also be fished in ways that prevent missed fish.

When trolling cranks I am constantly pumping my rod tip allowing for a stop and go presentation. I have found that walleyes following directly behind the bait will literally run into the crank as it suddenly stops. Also, if a fish hits on the pause, I will have few problems getting some hooks into it. If I am running boards I look for opportunities to make my boards produce the same action. Heavy waves help as boards jump and skip from wave to wave, also a more subtle stop and go presentation occurs while trolling a turning and twisting "S" pattern. Casting cranks should not always be a straight, no frills retrieve. Sometimes pauses and twitches, especially with neutrally buoyant baits are just the ticket. The exception to this rule for me is at night. I believe a straight retrieve at night allows the fish to hone in on your crank. You may be thinking to yourself, "I have never had a short bite on cranks." But unlike live bait, cranks provide no visual evidence of attack. While fishing cranks, a short bite may never even be felt, because your crank is moving away from the fish, and the walleye may not achieve any contact at all.

As far as spinners go, it is very difficult to incorporate a stop and go retrieve like cranks. Spinners have two built in advantages that already address the short bite for you. One, they are often full of hooks. Crawler harnesses incorporate a wide array of single and treble hooks. Two, the flash of the spinner and attraction of the beads often times focuses the point of the attack farther up the bait. This compensates for the fact that the spinner is moving away from the fish.

Some days, I will incorporate one or two of these approaches; some days all of them are pulled out of the arsenal. The difference is clear when you begin saying "We caught 58 walleyes today, we must have only missed one or two!" I believe walleyes are killing machines, and if you take the time to adapt many of your presentations to combat short bites, your catches will improve dramatically.

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# *Llamapaedia*

## Dental Pattern

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Llamas and alpacas have deciduous (baby teeth which fall out) and permanent teeth just like any other species. How many of each type varies with each species.

Llamas and alpacas have three pairs of deciduous **incisors** (front teeth) on the bottom and one pair on the top. The incisors on the top are further back in the mouth than the bottom incisors and look more like canine teeth than incisors. This makes up one of the pairs of upper fighting teeth. Full term crias should have all three pairs of lower incisors at the time of birth. The deciduous incisors fall out and are replaced by permanent incisors at certain ages which helps to age the llama by its teeth. The first pair of incisors (the two close together in the middle) will fall out between 2 and 2.5 years old. The second pair (the next two over from the center) will fall out between 2.5 and 3.5 years old. The third pair will fall out anywhere between 3 and 6 years old.



A 2 year and 3 month old male who has lost his first pair of deciduous incisors (green arrow).

Llamas and alpacas have one pair of **canine** teeth on the bottom and one pair of canine teeth on the top. Only about 5% of males have deciduous canines and the permanent canines begin coming in by 2 to 3.5 years old. All four canine teeth are present in males , but may or may not be present in females. These are the other two pairs of fighting teeth. Males have a total of three pairs of fighting teeth (two pairs of canines and one pair of incisors which look like canines). The fighting teeth are very sharp and angled towards

the back of the mouth. In the wild, these teeth are used to severely or mortally wound an opponent by cutting the jugular vein or the testicles. These teeth can be removed to prevent males from injuring each other during playing and fighting and to prevent males from injuring females during breeding. Some males will grab the ears of females with their mouth while breeding. This can result in cuts and scars on the female.



A 3 year old male whose upper fighting teeth have erupted (blue arrows) and lower fighting tooth has not yet come through the gums (green arrow).

Llamas and alpacas have two or three pairs of deciduous **premolars** on the top and one or two pairs of on the bottom. Premolars are the back teeth or cheek teeth closer to the front of the mouth than the molars. Premolars will have a deciduous or baby tooth which falls out before the permanent one erupts and molars will not. Molars first appear as permanent teeth. There are one or two pairs of permanent premolars on both the bottom and the top which come in at 3.5 to 5 years. The permanent premolars are premolars number 3 and 4 out of four. These are the two premolars which are closest to the molars. Premolars number 1 and 2 never develop in the llama and alpaca. This leaves a space between the incisors (or canines if present) and keeps all of the premolars and molars together without spaces between them in the back of the mouth for grinding up feeds.

### Age of Permanent Tooth Eruption in Llamas

First Incisors (I1)	2 to 2.5 years
Second Incisors (I2)	2.5 to 3.5 years
Third Incisors (I3)	3 to 4 years
Canines	2 to 3.5 years
Premolars	3.5 to 5 years
First Molars (M1)	6 to 9 months
Second Molars (M2)	1.5 to 2 years
Third Molars (M3)	2.75 to 3.75 years

Molars by definition are permanent teeth. There are no deciduous molars. Llamas and alpacas have three pairs of molars on the bottom and the top. The first pair of molars (right next to the last premolars) comes in on the bottom and top at 6 to 9 months old. The second pair of molars comes in on the bottom and top at 1.5 to 2 years old. The third pair comes in at 2.75 to 3.75 years old.

The molars and premolars of llamas and alpacas do not continuously grow (erupt) like they do in horses. This decreases their chance of developing sharp points which may make it difficult to eat and necessitate "floating" of the teeth. Floating is the filing off of sharp unworn portions of the teeth commonly performed in horses. Llamas and alpacas also have more side to side motion in their jaw than horses which helps to keep tooth wear more even and further decrease the risk of developing sharp points.

*Last updated February 15, 1998*

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Library of Congress Cataloging in Publication Data  
Main entry under title:

Webster's third new international dictionary of the English language,  
unabridged: a Merriam-Webster/editor in chief, Philip Babcock Gove  
and the Merriam-Webster editorial staff.

p. cm.  
ISBN 0-87779-201-1 (blue sturdite).—ISBN 0-87779-202-X  
(carrying case).—ISBN 0-87779-206-2 (imperial buckram).

I. English language—Dictionaries. I. Gove, Philip Babcock,  
1902–1972. II. Merriam-Webster, Inc.  
PE1625.W36  
423-dc20

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**diamine dye** *n*, often *cap* 1st *D* : any of numerous direct dyes — see DYE table I

**diamine oxidase** *n* : HISTAMINASE

**diamino-** *comb form* [ISV *di-* + *amin-*] : containing two amino groups — used in names of organic compounds (2, 6-diaminopurine)

**di-ami-no** \dī'ā-mē(-)nō, ('dī'amē,nō) *adj* [*diamino-*] : relating to or containing two amino or substituted amino groups

**di-ami-no-diphenyl sulfone** \+ ... \ *n* [ISV *diamino-* + *diphenyl*] : a crystalline compound (NH<sub>2</sub>C<sub>6</sub>H<sub>4</sub>)<sub>2</sub>SO<sub>2</sub> that like certain of its derivatives is used in the treatment of leprosy; 4, 4'-sulfonyl-di-aniline

**Di-a-mi-no-gen** \dī'ā-mē-nō-jen, -jen\ *trademark* — used for a direct dye; see DYE table I (under *Direct Blue* 126)

**di-ammonium** \dī+\ *adj* [*di-* + *ammonium*] : containing two ammonium radicals

**diammonium phosphate** *n* : AMMONIUM PHOSPHATE

**di-a-mond** \dī(ə)mənd\ *n* -s [ME *diamant*, *diamaunde*, fr.

MF *diamant*, *diamande*, fr. LL *diamant*-, *diamas*, alter. of (assumed) VL *adimant*-, *adimas* hardest iron or steel, diamond, fr. Gk *adamat*-, *adamas*]

**1 a** : native carbon crystallized in the isometric system often in the form of octahedrons with rounded edges and usu. nearly colorless that when transparent and more or less free from flaws is highly valued as a precious stone because having high refractive and dispersive powers it shows when faceted a remarkable brilliance and play of prismatic colors and that when off-color or flawed is invaluable for industrial purposes (as for use in wire dies, abrasive powder, rock drills, and turning tools) because it is the hardest substance known (hardness 10, sp. gr. 3.52) — see WATER 7a; BRILLIANT 1, ROSE, TABLE DIAMOND; BORT **b** : a piece of this material **c** : a crystalline mineral that is like diamond in brilliance — used with a qualifying name; see ALENÇON DIAMOND

**d** : crystallized carbon similar to the native but produced by artificial means **2 obs** : a very hard substance : ADAMANT

**3 a** : something that resembles a diamond (as in value, rarity, or brilliance) **b** : a person possessing very high character or other fine qualities **4** : a square or rhombus-shaped configuration usu. having a distinctive orientation (as by having a diagonal perpendicular to the horizontal) **5** : something shaped like a diamond; *specif* : any of the small diamond-shaped marks at regular intervals on the cushions of an American billiard table to aid the player in calculating the angles of his shots **6 a** : a red lozenge impressed on a playing card; *also* : a card marked with such lozenges **b diamonds pl but sing or pl in constr** : the suit comprising cards so marked **c bridge** : an odd trick won or contracted for with diamonds trumps (four ~s bid and made) **7** : a tool holding a diamond; *specif* : any of several instruments varying in shape, size, and surfaces featuring diamond bonded on a metallic base and used typically in dental work and for cutting glass **8** : an old size of printing type (approximately 4½ point) between brilliant and pearl — compare POINT SYSTEM **9 a** : the area of a baseball or softball field enclosed in a square with a base at each corner — called also *infield* **b** : the entire playing field in baseball or softball **10** : something ornamented or set with a diamond; *specif* : an engagement ring set with a diamond solitaire **11** : RERAILER **12 diamonds pl but sing in constr** : DIAMOND-SKIN DISEASE — diamond in the rough : a person of sterling character or other exceptional qualities but lacking in social graces or refinement of manner

**2 diamond** \+ \ *adj* **1** : consisting of or made of diamond **2** : BRIGHT, SPARKLING (the ~ dawn of a golden winter day — L.C. Stevens) **3** : ornamented or set with a diamond (~ tiara) **4** : shaped like a diamond : having diamond-shaped figures or parts (~ weave) **5** : of, relating to, or marking a 60th or a 75th anniversary

**3 diamond** \+ \ *vt* -ED/-ING/-S : to adorn with or as if with diamonds (the grass is ~ed with cobwebs of dew — Stuart Kinzie)

**di-a-mond albumin test** \dī(ə)mənd-\ *n*, usu *cap* *D* [after Louis S. Diamond b1920 Am. parasitologist] : a test for blocking antibodies (as in the Rh system) by use of red blood cells suspended in concentrated serum albumin — compare RH FACTOR

**diamond anniversary** *n* : a 60th or 75th anniversary

**1 diamondback** \+ \ *n* **1** : DIAMONDBACK RATTLESNAKE **2** : DIAMONDBACK TERRAPIN **3** : DIAMONDBACK MOTH

**2 diamondback** \+ \ *also* **diamond-backed** \+ \ *adj* : having marks like diamonds or lozenges on the back

**diamondback moth** *n* : a nearly cosmopolitan moth (*Plutella xylostella*) of European origin whose larva is a pest on cruciferous crops — called also *cabbage moth*

**diamondback rattlesnake** *n* : the largest and most deadly snake (*Crotalus adamanteus*) of No. America inhabiting the southern U.S. and sometimes attaining a length of eight feet

**diamondback terrapin** *n* : any of several terrapins constituting a genus *Malaclemys* and formerly widely distributed in salt marshes along the Atlantic and Gulf coasts from Buzzards Bay southward but now exterminated from much of the northern part of their range — see TERRAPIN illustration

**diamondback water snake** *n* : a harmless water snake (*Natrix rhombifera*) of southern No. America having a series of dark diamond-shaped marks along the back

**diamond ball** *n* : SOFTBALL

**diamond bird** *n* **1** : any of several Australian flower-peckers (genus *Pardalotus*) sometimes kept as cage birds — called also *diamond sparrow*, *pardalote* **2** : DIAMOND SPARROW 1

**diamond bracket** *n* : BRACKET 4b

**diamond canker** *n* : a virus disease of stone-fruit trees charac-

**diamond jubilee** *n* : a diamond anniversary or its celebration  
**diamond knot** *n* : a diamond-shaped knot tied in the strand of a rope used esp. to provide a foothold on a footrope

**diamond-leaf laurel** *n* : an Australian tree (*Pittosporum rhombifolium*) resembling a laurel of pyramidal habit

**diamond mortar** *n* : a small steel mortar used for pulverizing hard substances

**diamond paste** *n* : diamond dust in a jelly or oil used as an abrasive

**diamond pencil** *n* : a tool tipped with diamond (as for ruling gratings on metal)

**diamond plate** *n* **1** : a steel plate spread with diamond dust and oil for rubbing down gems **2** : a diamond-shaped plate or strap in a ship forming a connection and brace for the flanges of two frames or beams where they cross

**diamond point** *n* **1** : an instrument (as a stylus or cutting tool) with a diamond tip **2 a** : a diamond-shaped figure formed by intersecting rails at a railroad diamond crossing **b** : one of the acute angles formed at this crossing

**diamond-point** \+ \ *or* **diamond-pointed** \+ \ *adj* : having a point that is diamond-shaped or rhombus shaped (~ tool)

**diamond-point chisel** *n* : a cold chisel having a diamond-shaped cutting face for cutting V grooves or sharp internal corners

**diamond powder** *n* : DIAMOND DUST

**diamond rattlesnake** *n* : DIAMONDBACK RATTLESNAKE

**diamonds pl of DIAMOND, pres 3d sing of DIAMOND**

**diamond saw** *n* : a circular disk in the edge of which diamond dust or carbon diamonds are set to form a saw suitable for cutting hard material (as stone)

**Di-a-mond-scope** \+ \ *trademark* — used for a low-power microscope fitted with a special illuminator for use examining diamonds

**diamond-skin disease also diamond skin** *n* : a mild urticarial form of swine erysipelas characterized by 4-angled red patches on the skin

**diamond snake** *n* **1** : a snake of a variety of the carpet snake restricted to parts of the east coast of Australia and distinguished by smaller size, darker color, and reduction of the pattern to diamond-shaped clusters of spots **2 in Tasmania** : COPPERHEAD 1b

**diamond sparrow** *n* **1** : an Australian weaverbird (*Zonotrichia vittatus*) having white-spotted sides and a bright red tail base — called also *firetail* **2** : DIAMOND BIRD 1

**diamond stack** *n* : a smokestack with a diamond-shaped top used on early steam locomotives

**diamond tooth** *n* : a compound tooth for crosscut saws

**diamond truer** *n* : a grinding wheel truer consisting usu. of a short steel rod inserted in a wooden handle and having its free end a carbon diamond : DIAMOND DRESSER

**diamond turbot** *n* : DIAMOND FLOUNDER

**diamond wedding** *n* : a diamond anniversary of a wedding

**diamond wheel** *n* : a grinding wheel for very hard materials (as gems or tungsten carbide) using diamond dust as abrasive

**diamondwork** \+ \ *n* : masonry in which pieces are set so as to form diamond-shaped patterns on the surface

**di-a-morphine** \dī+ \ *n* [*diacetyl* + *morphine*] : HEROIN

**di-ana** \dī'anə\ *n* -s often *cap* [fr. the name *Diana*] : SQUIRREL

**di-ana butterfly** \+ \ *n*, usu *cap* *D* [NL *diana* (specific epithet of *Speyeria diana*), fr. L *Diana*, Roman goddess of the moon, moon; fr. the silvery crescents on the wings] : a large butterfly (*Speyeria diana*) mainly of the southern Appalachian region, the male being brown above with a fulvous border at the female bluish black with blue spots

**diana monkey** *n*, usu *cap* *D* [NL *diana* (specific epithet of *Cercopithecus diana*), fr. L *Diana*; fr. the white crescent on the forehead] : a white-bearded monkey (*Cercopithecus diana*) of western Africa

**di-an-drous** \+ \ *adj* [*di-* + *-androus*] **1** : having two stamens **2 of a moss** : having two antheridia associated with each bract

**di-ane pigment** \+ \ *n*, usu *cap* *D* [prob. fr. the name *Diane*] : either of two organic pigments — see DYE table (under *Pigment Blue* 25 and *Pigment Orange* 16)

**di-anisidine** \dī+ \ *n* [ISV *di-* + *anisidine*] : BIANISIDINE — used chiefly commercially (~ blue)

**di-a-nite** \dī'ā-nīt\ *n* -s [G *dianit*, fr. NL *dianium* new metal held to be contained in dianite (fr. L *Diana* + *-ium*) + *G* -ite] : a variety of columbite

**di-a-no-et-ic** \dī'ā-nō-ēd-ik\ *adj* [Gk *dianoetikos*, fr. *dianoōtē* (verbal of *dianoēsthai* to think) + *-ikos* -ic] : of or relating to dianoa : INTELLECTUAL

**dianoetic virtue** *n*, *Aristotelianism* : INTELLECTUAL VIRTUE

**di-a-noia** \dī'ā-nō-ia\ *also* -ōi-ə\ *n* -s [Gk, fr. *dianoēsthai* have in mind, think, fr. *dia-* + *nous* mind] **1** : the capacity for process of, or result of discursive thinking **2** : OPINION 6 contrasted with *noesis*

**di-an-the-ra** \dī'an(t)thə-rə\ [NL, fr. *di-* + *-anthera*] *syn* JUSTICIA

**di-an-thus** \dī'an(t)thəs\ *n* [Gk *dios* heavenly + *N* -*anthus* -more at DEITY] **1 cap** : a very large and horticulturally important Old World genus of herbs (family Caryophyllaceae) including the pinks and carnations and distinguished by the cylindrical many-veined calyx with bracts at its base **2 -es** : any plant or flower of the genus *Dianthus* **3 -es** : grayish to moderate red that is yellower and darker than Cambridge red

**di-a-pasm** \dī'ā-pəzəm\ *n* -s [L *diapasma*, fr. Gk *diapasm*



diamond  
4



diamond knot

dia-  
mond  
4



diamond knot

amoeboid passage of leukocytes between  
thelial cells 2 : loss of blood (as in  
brane) without detectable gross les  
[,ded-ik] adj  
di-a-pen-sia-<sup>1</sup> /di,ˈpɛnsiə/ n [NL, fr.  
pente by fives + NL -ia: fr. the five-  
genus (the type of the family Di-  
cogen plants with small cor-  
flowers on short peduncles 2-5 :  
Diapensi  
di-a-pen-si-a-ce-ae /di,ˈpɛnsiˈæːsɛ/ *Diapensi-  
Diapensi*, type genus + -aceae) : a f-  
the order Diapensales or included  
north temperate low evergreen plan-  
flowers and epitelous stamens and  
compare GALAX, PYXIDANTHERA —  
[,ʃəʃəs] adj  
di-a-pen-si-a-les /di,ˈpɛnsiˈæl/ *Diapensi-  
Diapensi* + *-ales* in some classifica-  
evergreen plants distinguished from  
Erub. by a tricarpetate ovary and  
of which one is reduced to stamino-  
di-a-pen-te /di,ˈpɛnti/, -en- /di,ˈpɛnti/ n -  
di-a-pente (chordōn symphōnia) the co-  
fr. dia through + pente five — m-  
interval or consonance of the fifth in  
di-a-per /di,ˈpə(r)/ n -s [ME *diapir*,  
fr. ML *diapiron*, prob. fr. neut. of  
*diapirus* made of diaper, fr. MG  
*diaprus* pure white, fr. Gk *dia* through  
throughout + Gk *aspros* white —  
more at DIA-, ASPER] 1 : a fabric with  
a distinctive pattern 2 : a rich silk  
fabric *b* also *diaper cloth* : a soft usu-  
white linen or cotton fabric used for  
tablecloths, towels, and now chief-  
for infants' wear 2 *a* archaic : a tow-  
or napkin *b* : a basic garment for in-  
fants consisting usu. of a piece of fold-  
cloth or other absorbent materi-  
drawn up between the legs and fasten-  
about the waist 3 : an allover pattern  
consisting of one or more small re-  
peating units of design (as geometric  
figures) connecting with one another  
growing out of one another with con-  
tinuously flowing or straight lines  
2 *a* *diaper* — *vb* *diapered*; *diapere*  
*diapering* -p(ə)rɪŋ/ *diapers* [M  
*diapren*, fr. MF *diaprer*, *diaprer*, *i*  
*diapre*, *diapre*] *vi* 1 : to ornament w/  
*diaper* designs : weave (cloth)  
*diaper* patterns : make (a figure)  
*diaper* pattern 2 : to put on or chan-  
the *diaper* of (an infant) *vi* : to dra-  
*diaper* the curtains (as on cloth)  
*diapered* adj [ME *diapred*, fr. past *p*-  
a design of or resembling a *diaper* *p*-  
*diapering* n -s : the act of ornamenting  
work or ornamentation  
*diaper rash* n : an inflammation of the  
: the condition caused by exposu-  
ammonia  
*diaper service* n 1 : a business co-  
launders *diapers* 2 : the supplying a  
carried out by a *diaper service*  
diaphan- or diaphano- comb form [L  
(diaphanometer)  
di-a-phane /di,ˈfəʃn/ adj [MF, fr.  
DIAPHANOUS  
2 *a* *diaphane* — n -s 1 : diaphanous :  
resinous medium for microscopic mo-  
refractive index and comparatively  
with stains  
di-aph-a-ne-i-ty /di,ˈfəʃnɛi,ˈtɪ/ n -  
néité, fr. diaphane diaphanous + -i-  
state of being diaphanous; specif :  
transmit light  
di-aph-a-nous /di,ˈfəʃn/ n -s [F, fr.  
of imitating stained glass with tra-  
di-aph-a-nom-e-ter /di,ˈfəʃnɒm,ˈɛt-  
-meter/ : an instrument for measurin-  
or liquids) — *di-aph-a-nom-e-tric* /  
di-aph-a-nos-cop-e /di,ˈfəʃnɒskɒp,ˈ  
-scope/ : a device for examining the  
domestic animals — *di-aph-a-nos-cop-*  
di-aph-a-nous /di,ˈfəʃnɒs/ adj [F, fr.  
*diaphanēs*, fr. *diaphanein* to shine  
to shine more brightly] 1 : chara-  
and delicacy of texture as to permit  
a high degree of clarity (~ gowns  
~ water through which fish may be  
posed or arranged to permit ready p-  
sion of an inner or veiled essence  
illusions, with the shapes of things as  
faintly through them — L.P. Smith)  
treme delicacy of form : ETHERAL <  
— Wolfgang Born> (the fantastic, the  
footed and delicate, like a fairy's dan-  
4 : INSUBSTANTIAL, VAGUE (the ~ p-  
di-aph-a-nous-ly /di,ˈfəʃnɒsli/ adv : in a diaphan  
di-aph-a-nous-ness n -es : the qu  
diaphanous  
di-a-phone /di,ˈfəʃn/ n -s [*dia* + -  
p. of a phoneme that occur in all utter-  
language (in French the tongue-triller  
and the uvula-trilled *r* used by othe  
same ~) 2 : a fog signal similar to  
pipe-organ stop of peculiar construc-  
or 32-foot pitch  
di-a-pho-neme /di,ˈfəʃnɛm,ˈnɛm/ n -  
di-aphon- or -member of a category  
a range of dialectal variants of an alloph  
[di,ˈfəʃnɛm] adj  
di-a-pho-nic /di,ˈfəʃnik/ adj [diaph-  
to phonology  
2 *a* *diaphonic* — adj [diaphone + -ic,  
diaphone 2 : using a single symbo  
(a ~ transcription)  
di-aph-o-ny /di,ˈfəʃni/ also *di-a-ph-*  
diaphonies also *diaphonias* [ML  
*phōnia*, fr. *diaphōnos* dissimilar, (fr.  
sound) — *di-aph-o-ni-ty* (BAN) 1 *G*  
— posed to *sympathy* 2 *medie*  
di-aph-o-r-ase /di,ˈfəʃræs, -əz/ n -s  
+ E -ase] : a flavoprotein enzyme  
reduced form of diphosphopyridine  
phosphorylase nucleotide at the expen-  
cal electron acceptor (as the dye me-  
di-a-pho-re-sis /di,ˈfəʃrɛsɪs/ n -s  
[LL, fr. Gk *diaphōrēsis*, fr. *diaphōrē-*  
(fr. *dia* + *phōrein* to carry, fr.  
— *diaphōrēsis*) : PERSPERSION; *e*